

Serial No. 09/541,716

2

portions of the stream to reflect light diffusely onto a part-toroidal mirror extending over that overall width, whence the light is reflected, by a rotating, polygonal mirror through optical filters dedicated to differing IR wavelengths, onto detectors the data output of which is utilised in controlling solenoid valves operating air jet nozzles which separate-out the desired portions. Alternatively or additionally, an oscillator and an antenna which extends over that overall width generate an electromagnetic field through the belt and sensing coils sense variations therein produced by metallic portions of the stream passing through the detection station and the detection data produced by the sensing coils is used to control the solenoid valves operating the nozzles to separate-out the metallic portions.

IN THE TITLE

Page 1, above line 1, insert the heading.

TITLE OF THE INVENTION

Page 1, between lines 1 and 2, insert the following:

CROSS-REFERENCES TO RELATED APPLICATIONS

This Application is a Divisional of our United States Patent Application Serial No. 08/776,689 filed as International Patent Application Serial No. PCT/1B95/00672 on August 2, 1995 and issued on 9 May 2000 as United States Patent Serial No. 6,060,677.

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

Page 1, between lines 8 and 9, insert the following:

2. DESCRIPTION OF THE RELATED ART INCLUDING INFORMATION
DISCLOSED UNDER 37CFR 1.97 AND 1.98

Serial No. 09/541,718

3

Amend page 5, line 3, and line 5 as follows.

US-A-5260576 and EP-A-484,221 disclose a method and apparatus for distinguishing and separating material items having different levels of absorption of penetrating electromagnetic radiation by utilising a source of radiation for irradiating an irradiation zone extending transversely of a feed path over which the material items are fed or passed. The irradiation zone includes a plurality of transversely spaced radiation detectors for receiving the radiation beams from the radiation source. The material items pass through the irradiation zone between the radiation source and the detectors and the detectors measure one or more of the transmitted beams in each item passing through the irradiation zone to produce processing signals which are analyzed by signal analyzers to produce signals for actuating a separator device in order to discharge the irradiated items toward different locations depending upon the level of radiation absorption in each of the items. The disclosure states that mixtures containing metals, plastic, textiles, paper and/or other such waste materials can be separated since penetrating electromagnetic radiation typically passes through the items of different materials to differing degrees, examples given being the separation of aluminum beverage cans from mixtures containing such cans and plastic containers and the separation of chlorinated plastics from a municipal solid waste mixture. The source of penetrating radiation may be an X-ray source, a microwave source, a radioactive substance which emits gamma rays, or a source of UV energy, IR energy or visible light. One example of material items which are disclosed as having been successfully separated are recyclable plastic containers, such as polyester containers and polyvinyl chloride (PVC) containers, which were separated using X-rays.

Page 6, between lines 14 and 15, insert the following paragraph.

US-A-4718559 discloses selective non-magnetic detection of non-ferrous metallic particles in a mixture of the same with ferrous metallic particles and non-metallic particles and non-metallic particles derived from homogenised and magnetically treated municipal or like waste by a plurality of electronic detectors and separation of a non-ferrous metallic concentrate from the mixture. In the process, the waste particles, agglomerates or vicinity of detector coils in association with an electronic activation system which activates a particle remover, preferably pneumatic.

Serial No. 09/541,718

4

The remover may be made up of an air supply line which conducts air to an air valve and jet-type spray unit which causes most of the non-ferrous metallic particles to fall into or onto a non-metallic residue conveyor, which is separated from a metallic concentrate conveyor by a partition.

Page 6, between lines 26 and 27 insert the following paragraph.

US-A-4718558 and US-A-4057146 incorporated therein by reference disclose apparatus for optically sorting small lightweight objects such as beans and/or grains on the basis of size and colour. The small objects pass through the apparatus in a plurality of separate streams, each stream being fed from its own hopper to its own control gate to its own vibrating try and thence, through its own vertically positioned channel, to arrive at its own analysis head. Each analysis head is in the form of an annulus with the central opening directly beneath the outlet end of the corresponding channel and the small objects in the corresponding stream fall down through its central opening one after another with vertical separation therebetween. Illumination is supplied by a plurality of illuminating lamps. For each analysis head, the light reflected from it particular stream is conveyed to a plurality of photodetectors of that head. The reflected light is conveyed to that plurality of photodetectors by a plurality of optical fibres of the analysis head. A solenoid-operated compressed air valve is opened when an object in the stream is to be rejected into a rejection hopper; otherwise, the valve remains closed and the objects fall directly into an acceptance hopper. It appears that analysis circuits for the respective streams are housed in a common control unit having a control panel which displays information and allows an operator to control the apparatus, including the setting of parameters.

Page 7, between lines 6 and 7, insert the following paragraph.

US-A-6068106 discloses a unit for conveying products and having a main conveying device in the form of a belt conveyor; two secondary conveying devices for feeding respective streams of products to the main conveying device via respective inputs; and a distributing device for so controlling the two streams that the products in a first of the two streams, on reaching an output of the main conveying device, are offset with respect to the products in a second of the two streams, so as to form a

Serial No. 09/541,718

5

single succession of products through the output. The two inputs are separated by a vertical partition extending towards the location where the two streams are combined.

BRIEF SUMMARY OF THE INVENTION

Page 13, line 31, insert the following:

According to a seventh aspect of the present invention, there is provided a method of automatically inspecting matter for varying composition, comprising advancing through a detection station a first stream of matter, emitting detection medium to be active at a transverse section of said stream at said detection station, wherein said medium is varied by variations in the composition of said matter at said transverse section, obtaining from said detection station first detection data as to a constituent of said first stream, characterised by advancing a second stream of matter through said detection station simultaneously with said first stream, emitting detection medium to be active at a transverse section of said second stream at said detection station, wherein the latter medium is varied by variations in the composition of matter of said second stream at the latter transverse section, and obtaining from said detection station second detection data as to a constituent of said second stream, and also characterised in that the varied medium from both of the first and second streams is received by a receiving device common to both streams.

Page 14, between lines 5 and 6, insert the following.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Page 14, between 39 and 40, insert the following.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE
INVENTION